

IN THE CLAIMS

Please amend the claims as follows:

1. (Previously Presented): A device for scanning a document, comprising:

a photoelectric conversion unit which scans a document, and supplies image data of the scanned document;

a background detecting unit which detects a background level of the image data so as to produce original background level value data that is separate from and not part of the image data and indicative of the background level;

an image processing unit which applies one or more types of image processing to the image data, and applies image processing identical to said one or more types of image processing to the original background level value to produce modified background level value data; and

a background removal unit which removes background noise from the image processed data according to a generated threshold that is derived from the modified background level value data.
- 2 (Original): The device as claimed in claim 1, wherein said one or more types of image processing includes γ conversion.
- 3 (Original): The device as claimed in claim 2, wherein the γ conversion is performed at an end of said one or more types of image processing.
- 4 (Original): The device as claimed in claim 1, wherein said one or more types of image processing includes MTF correction.

5 (Original): The device as claimed in claim 1, wherein said one or more types of image processing includes a filtering process.

6 (Previously Presented): The device as claimed in claim 1, wherein said image processing unit applies said one or more types of image processing to the image data and the original detected background level through one operation.

7 (Previously Presented): The device as claimed in claim 6, further comprising a combining unit which includes the detected original background level into the image data as part of the image data prior to the image processing by said image processing unit.

8 (Previously Presented): The device as claimed in claim 7, wherein said combining unit generates a gate signal indicative of a position of the detected background level included in the image data, said device further comprising a background data extracting unit which extracts the detected original background level from the image data in response to the gate signal.

9 (Previously Presented): The device as claimed in claim 7, wherein said one or more types of image processing includes a filtering process, and said combining unit includes the detected original background level into the image data at a position of a blank period of the image data.

10 (Previously Presented): The device as claimed in claim 7, wherein said one or more types of image processing includes a filtering process, and said combining unit includes the detected original background level into the image data at a position of a valid data period of the image data such that the included detected background level has a data size larger than a filter

size of said filtering process.

11 (Original): The device as claimed in claim 1, further comprising a printer unit which prints an image on a paper sheet according to the image data from which the background noise is removed by said background removal unit.

12 (Previously Presented): An apparatus for scanning a document, comprising:
a memory unit which stores therein scanned image data and original background level value data that is separate from the scanned image data;
an input unit which receives a user instruction making a choice between performing of background noise removal on the scanned image data and non-performing of the background noise removal on the scanned images; and
a background removal unit which removes background noise from the scanned image data stored in said memory unit in response to the user instruction indicative of performing of the background noise removal, and refrains from removing background noise from the scanned image data stored in said memory unit in response to the user instruction indicative of non-performing of the background noise removal, wherein in response to the user instruction indicative of performing of the background noise removal, said original background level value data is modified by image processing identical to that applied to the scanned image data to produce modified background level value data.

13 (Original): The apparatus as claimed in claim 12, further comprising a controller which connects said memory unit to an external network so as to allow access to be made from the external network to the scanned image data stored in said memory unit.

14 (Previously Presented): A method of processing image data, comprising:

detecting a background level of image data of a scanned document so as to produce original background level value data indicative of the background level;

applying one or more types of image processing to the image data so as to generate image processed data, and applying image processing identical to said one or more types of image processing to the original background level value data that is separate from and not part of the image data to produce modified background level value data; and

removing background noise from the image processed data having according to a generated threshold that is derived from the modified background level value data.

15 (Original): The method as claimed in claim 14, wherein said one or more types of image processing includes γ conversion.

16 ((Previously Presented): The method as claimed in claim 14, wherein the γ conversion is performed at an end of said one or more types of image processing.

17 (Original): The method as claimed in claim 14, wherein said one or more types of image processing includes MTF correction.

18 (Original): The method as claimed in claim 14, wherein said one or more types of image processing includes a filtering process.

19 (Previously Presented): The method as claimed in claim 14, wherein said image processing step applies said one or more types of image processing to the image data and the detected original background level value data through one operation.

20 (Previously Presented): The method as claimed in claim 19, further comprising combining the detected original background level value data into the image data as part of the image data prior to the image processing.

21 (Previously Presented): The method as claimed in claim 20, further comprising:
generating a gate signal indicative of a position of the detected original background level value data included in the image data; and

extracting the detected original background level value data from the image data in response to the gate signal.

22 (Previously Presented): The method as claimed in claim 20, wherein said one or more types of image processing includes a filtering process, and said combining combines the detected original background level value data into the image data at a position of a blank period of the image data..

23 (Previously Presented): The method as claimed in claim 20, wherein said one or more types of image processing includes a filtering process, and said combining combines the detected original background level value data into the image data at a position of a valid data period of the image data such that the included detected original background level value data has a data size larger than a filter size of said filtering process.

24 (Previously Presented): A method of scanning a document, comprising:
storing scanned image data and original background level value data that is separate from the scanned image data in memory;

accepting a user instruction making a choice between performing of background noise removal on the scanned image data and no-performing of the background noise removal on the scanned image data; and

removing background noise from the scanned image data stored in said memory in response to the user instruction indicative of performing of the background noise removal, and refraining from removing background noise from the scanned image data stored in said memory in response to the user instruction indicative of non-performing of the background noise removal, wherein in response to the user instruction indicative of performing of the background noise removal, modifying said original background level value data by image processing identical to that applied to the scanned image data to produce modified background level value data.

25 (Previously Presented): The method as in claim 24, further comprising allowing access to be made from an external network to the scanned image data stored in said memory.

26. (Previously Presented): A device for scanning a document, comprising:

scanning means for scanning a document, and for supplying image data of the scanned document;

background detecting means for detecting a background level of the image data so as to produce original background level value data that is separate from and not part of the image data and indicative of the background level;

image processing means for applying one or more types of image processing to the image data so as to generate image processed data, and for applying image processing identical to said one or more types of image processing to the original background level value data to produce modified background level value data; and

background removal means for removing background noise from the image processed data according to a generated threshold that is derived from the modified background level value data.

27 (Previously Presented): A device for scanning a document, comprising:

a background detecting unit which detects background level data of image data of a scanned document;

a threshold generating unit which determines a threshold based on the detected background level data so as to produce an original threshold level value indicative of the threshold;

a clipping unit which clips to the threshold the image data above the original threshold level value;

an image processing unit which applies one or more types of image processing to the clipped image data so as to generate clipped image processed data and further to the original threshold level value to produce a modified threshold level value; and

a background removal unit which removes background noise from the clipped image data according to a generated threshold that is derived from the modified threshold level value.

28 (Original): The device as claimed in claim 27, further comprising a combining unit that includes the threshold into the clipped image data as part of the clipped image data prior to the image processing by said image processing unit.

29 (Original): The device as claimed in claim 28, wherein said one or more types of image processing includes a filtering process, and said combining unit includes the threshold into the clipped image data at a position of a valid data period of the clipped image

data such that the included threshold has a data size larger than a filter size of said filtering process.

30. (Previously Presented): A device for scanning a document, comprising:

background detecting means for detecting a background level of image data of a scanned document;

threshold generating means for determining a threshold based on the detected background level so as to produce an original threshold level value that is separate from and not part of the clipped image data and indicative of the threshold;

clipping means for clipping to the original threshold the image data above the threshold;

image processing means for applying one or more types of image processing to the clipped image data so as to generate clipped processed data and further to the original threshold level value to produce a modified threshold level value; and

background removal means for removing background noise from the clipped image data according to a generated threshold that is derived from the modified threshold level value.

31. (Currently Amended) The device as claimed in Claim 1, wherein the background detecting unit is configured to append, in a same data file for subsequent processing with the image data, the original background level value data to the image data ~~for subsequent processing with the image data~~ in a part of the data file concatenated from the image data.

32. (Currently Amended) The method as claimed in Claim 14, wherein detecting comprises:

appending, in a same data file for subsequent processing with the image data, the original background level value data to the image data ~~for subsequent processing with the~~

~~image data~~ in a part of the data file concatenated from the image data.

33. (Currently Amended) The device as claimed in Claim 26, wherein the background detecting means are configured to append, in a same data file for subsequent processing with the image data, the original background level value data to the image data ~~for subsequent processing with the image data~~ in a part of the data file concatenated from the image data.

34. (Currently Amended) The device as claimed in Claim 27, wherein the background detecting unit is configured to append, in a same data file for subsequent processing with the image data, the original background level value data to the image data ~~for subsequent processing with the image data~~ in a part of the data file concatenated from the image data.

35. (Currently Amended) The device as claimed in Claim 30, wherein the background detecting means are configured to append, in a same data file for subsequent processing with the image data, the original background level value data to the image data ~~for subsequent processing with the image data~~ in a part of the data file concatenated from the image dataa.